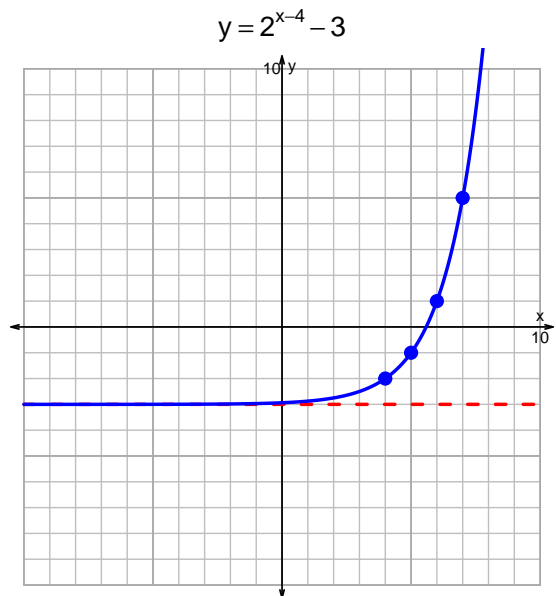
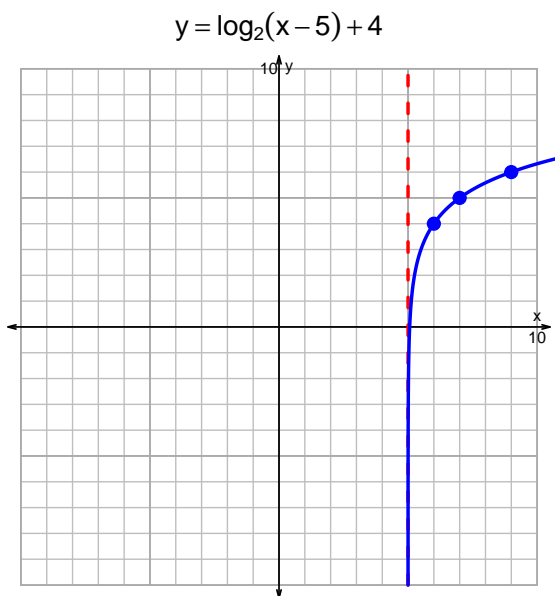


Name: \_\_\_\_\_

Date: \_\_\_\_\_

s18QUIZ: EXP LOG (SLTN v203)

1. Graph  $y = \log_2(x - 5) + 4$  and  $y = 2^{x-4} - 3$  on the grids below. Also, draw any asymptotes with dotted lines.



2. Write (but do not evaluate) the solution to the equation below by writing a logarithmic expression.

$$17 = \left(\frac{3}{4}\right) \cdot 10^{7t/5}$$

Divide both sides by  $\frac{3}{4}$ .

$$\frac{17 \cdot 4}{3} = 10^{7t/5}$$

Take log, base 10, of both sides.

$$\log_{10} \left( \frac{17 \cdot 4}{3} \right) = \frac{7t}{5}$$

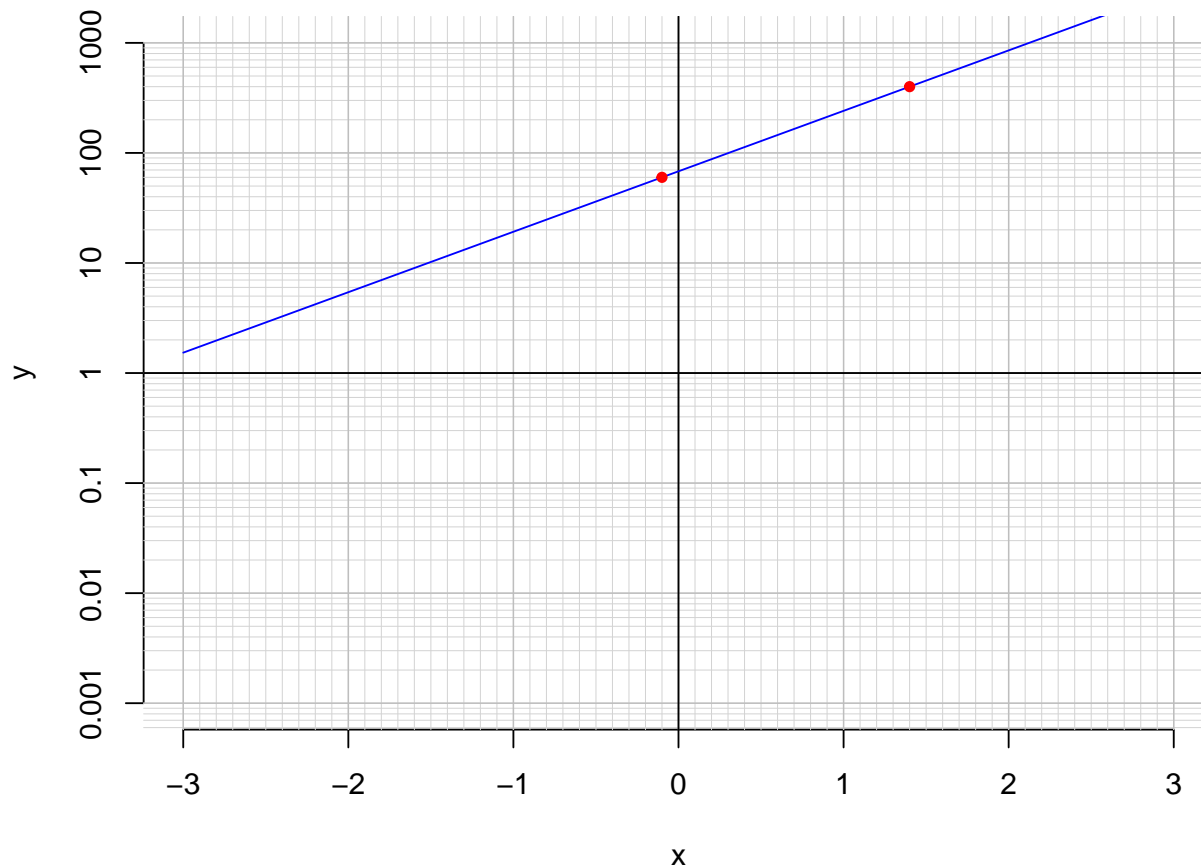
Divide both sides by  $\frac{7}{5}$ .

$$\frac{5}{7} \cdot \log_{10} \left( \frac{17 \cdot 4}{3} \right) = t$$

Switch sides.

$$t = \frac{5}{7} \cdot \log_{10} \left( \frac{17 \cdot 4}{3} \right)$$

3. An exponential function  $f(x) = 68.1 \cdot e^{1.26x}$  is graphed below on a semi-log plot.



- a. Using the plot above, evaluate  $f(-0.1)$ .

$$f(-0.1) = 60$$

- b. Express  $f^{-1}(x)$ , the inverse of  $f$ .

$$f^{-1}(x) = \frac{1}{1.26} \cdot \ln\left(\frac{x}{68.1}\right)$$

- c. Using the plot above, evaluate  $f^{-1}(400)$ .

$$f^{-1}(400) = 1.4$$